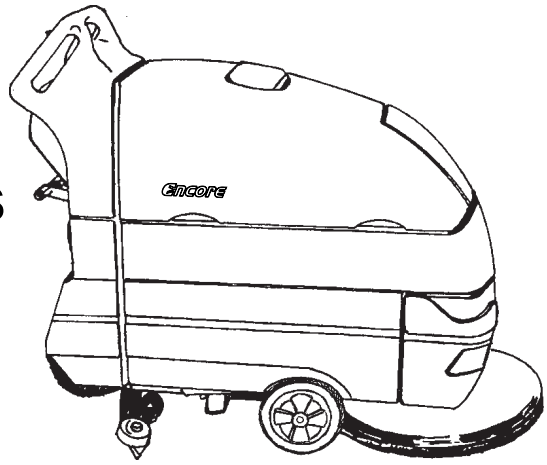
ALTO®

CLARKE

TECHNOLOGY

Operator's Manual



ENCORE S20/L20

U.S. Patent No. 5,383,251; No. 6,105,192; No. 6,557,207; & Patent Pending

READ THIS BOOK

This book has important information for the use and safe operation of this machine. Failure to read this book prior to operating or attempting any service or maintenance procedure to your ALTO machine could result in injury to you or to other personnel; damage to the machine or to other property could occur as well. You must have training in the operation of this machine before using it. If operator(s) cannot read English, have this manual explained fully before attempting to operate this machine.

Si Ud. o sus operadores no pueden leer el Inglés, se hagan explicar este manual completamente antes de tratar el manejo o servicio de esta máquina.

All directions given in this book are as seen from the operator's position at the rear of the machine.

For new books write to: ALTO U.S. Inc., 2100 Highway 265, Springdale, Arkansas 72764.

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OPERATOR SAFETY INSTRUCTIONS

WARNING **AVERTISSEMENT** **ADVERTENCIA**

DANGER: **Failure to read and observe all DANGER statements could result in severe bodily injury or death. Read and observe all DANGER statements found in your Owner's Manual and on your machine.**

WARNING: **Failure to read and observe all WARNING statements could result in injury to you or to other personnel; property damage could occur as well. Read and observe all WARNING statements found in your Owner's Manual and on your machine.**

CAUTION: **Failure to read and observe all CAUTION statements could result in damage to the machine or to other property. Read and observe all CAUTION statements found in our Owner's Manual and on your machine.**

DANGER: Failure to read the Owner's Manual prior to operating or attempting any service or maintenance procedure to your Clarke Technology machine could result in injury to you or to other personnel; damage to the machine or to other property could occur as well. You must have training in the operation of this machine before using it. If you or your operator(s) cannot read English, have this manual explained fully before attempting to operate this machine.

DANGER: Operating a machine that is not completely or fully assembled could result in injury or property damage. Do not operate this machine until it is completely assembled. Inspect the machine carefully before operation.

DANGER: Machines can cause an explosion when operated near flammable materials and vapors. Do not use this machine with or near fuels, grain dust, solvents, thinners, or other flammable materials. This machine is not suitable for picking up hazardous dust.

DANGER: Lead acid batteries generate gases which can cause an explosion. Keep sparks and flames away from batteries. Do not smoke around the machine. Charge the batteries only in an area with good ventilation. Make sure that the AC charger plug is unplugged from the wall receptacle before connecting or disconnecting the DC plug to or from the battery pack.

DANGER: Working with batteries can be dangerous! Always wear eye protection and protective clothing when working near batteries. Remove all jewelry. Do not put tools or other metal objects across the battery terminals, or the tops of the batteries.

DANGER: Using a charger with a damaged power cord could result in an electrocution. Do not use the charger if the power cord is damaged.

WARNING: Operating this machine from anywhere other than the back of the machine could result in injury or damage. Operate this machine only from the rear.

WARNING: This machine is heavy. Get assistance before attempting to transport or move it. Use two able persons to move the machine on a ramp or incline. Always move slowly. Do not turn the machine on a ramp. If operating machine on a gradient over 2%, do not stop, turn or park. Read the "Procedures For Transporting" in this manual before transporting as machine might topple over if not strapped.

WARNING: Machines can topple over if guided over the edges of stairs or loading docks and cause injury or damage. Stop and leave this machine only on a level surface. When you stop the machine, put all switches into their "OFF" position.

WARNING: Maintenance and repairs performed by unauthorized personnel could result in damage or injury. Maintenance and repairs must be performed by authorized Clarke Technology personnel only.

WARNING: Any alterations or modifications of this machine could result in damage to the machine or injury to the operator or other bystanders. Alterations or modifications not authorized by the manufacturer voids any and all warranties and liabilities.

WARNING: Electrical components of this machine can "short-out" if exposed to water or moisture. Keep the electrical components of the machine dry. Wipe the machine down after each use. For storage, keep the machine in a dry building.

WARNING: Operating a machine without observing all labels and instructional information could result in injury or damage. Read all machine labels before attempting to operate. Make sure all of the labels and instructional information are attached or fastened to the machine. Get replacement labels and decals from your Clarke Technology distributor.

WARNING: Wet floor surfaces can be slippery. Water solutions or cleaning materials used with this type of machine can leave wet areas on the floor surface. These areas can cause a dangerous condition for the operator or other persons. Always put "Caution" signs around/near the area you are cleaning.

WARNING: Improper discharge of waste water may damage the environment and be illegal. The United States Environmental Protection Agency has established certain regulations regarding discharge of waste water. Also, city and state regulations regarding this discharge my be in effect in your area. Understand and follow the regulations in your area. Be aware of the environment hazards of chemicals that you dispose.

CAUTION: Use of this machine to move other objects or to climb on could result in injury or damage. Do not use this machine as a step or furniture. Do not ride on this machine.

CAUTION: Your machine warranty will be voided if anything other than genuine Clarke Technology parts are used on your machine. Always use Clarke Technology parts for replacement.

English ***Correct Disposal of This Product (Waste Electrical & Electronic Equipment)***

(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

Introduction & Machine Specifications

Clarke Technology's newly designed Encore S20 and L20 automatic scrubbers are efficient and superior floor cleaning machines. The Encore uses one brush to scrub a path 20 inches wide. A squeegee wipes the floor while the vacuum motor removes the dirty solution from the floor - all in one pass.

The Encore S20 and L20 automatic scrubbers come complete with two - 12 volt batteries, one battery charger, either a scrub brush or a pad driver, and one operator's manual.

SPECIFICATIONS:

Model	Encore L20 - 00880A	Encore S20 00890A	Encore L20 w/brake 00880E	Encore S20 w/brake 00890E
Motor, Vac	¾ HP three stage tangential discharge 21 Amp			
Power Supply	24 volt direct current (2) 12 Volt 195AH Batteries			
Solution Tank	14 gallons		53 Liters	
Recovery Tank	14 gallons		53 Liters	
Parabolic Squeegee	32" Hard, 34" Flex		81 cm Hard, 86 cm Flex	
Motor, Brush	.75 hp PM 33 amp			
Motor Traction	.5 hp PM (.37kw) 23 Amp	N/A	.5 hp PM (.37kw) 23 Amp	NA
Brushes	20 inch		51 cm	
Brush Speed	200 rpm			
Brush Pressure	100 lbs.		45.36 kg	
Speed, Forward	0=250 ft/min.	brush assist.	0=76.2 m/min.	brush assist
Speed Reverse	0=190 ft/min.	N/A	0=58 m/min.	NA
Drive Wheels	8" x 2" Neoprene thread		20.32 cm s 5.08cm Neoprene thread	
Charger	24V, 25A, 115V/60hz			
Length	52½"		133.4 cm	
Width (over brush housing)	22¼"		56.5 cm	
Height	43½"		110.5 cm	
Sound Level (DBA)	74, at 5 feet		74,at 1.5 meters	
Cleaning Swath	20 inch		51 cm	
Grade Cleaning	5° Incline			
Weight	468 lbs. w/(2) 871334A batteries		212.28 kg w(2) 871334A batteries	
Shipping Weight	607 lbs. w/wet batteries		275.33 kg w/wet batteries	
Battery Weight (each)	113 lbs. (871334A) and 81 lbs. (871335A)		51.26 kg (871334A) and 36.74 kg (871335A)	
Shipping Dimensions	28" x 65.5" x 46.5"		71.12 cm x 166.37 cm x 118.11 cm	

Procedures For Transporting

How to Put the Machine Into a Van or Truck

WARNING: This machine is heavy. Get assistance before attempting to transport or move it. Use two able persons to move the machine on a ramp or incline. Always move slowly. Do not turn the machine on a ramp. Do not stop and leave the machine on a ramp or incline. The loading ramp must be a minimum of 32" wide.

WARNING: Machines can topple over if guided over the edges of stairs or loading docks and cause injury or damage. Stop and leave this machine only on a level surface. When you stop the machine, put all switches into their "OFF" position.

1. Make sure the loading ramp is at least eight (8) feet long and a minimum of 32" wide, and strong enough to support the machine.
2. Make sure the ramp is clean and dry.
3. Put the ramp in position.
4. Remove squeegee assembly, brush housing and brush or pad driver before loading.
5. Turn key switch "ON" (on L20 model only).
6. Align the machine on a level surface five (5) feet in front of the ramp.
7. Put the traverse knob at full speed (on L20 model only).
8. For the L20 machine, push in either one of the forward/reverse switches while pushing in the white reverse switch. Back the machine up the ramp. See figure 1.
9. For the S20 machine, push the machine backwards to the top of the ramp.
10. Turn the key switch "OFF".

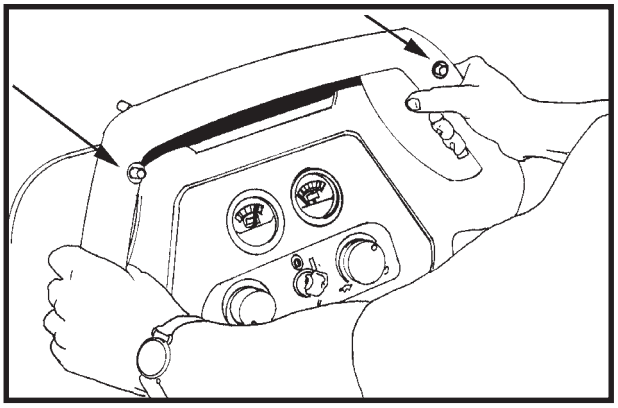


Figure #1

Procedures For Transporting (cont.)

11. **Fasten the machine to the vehicle.** Clarke Technology recommends a strap over the top of the machine and a strap to keep the machine from rolling forward or backwards. If this is not done, there is a possiblity of the machine toppling over.

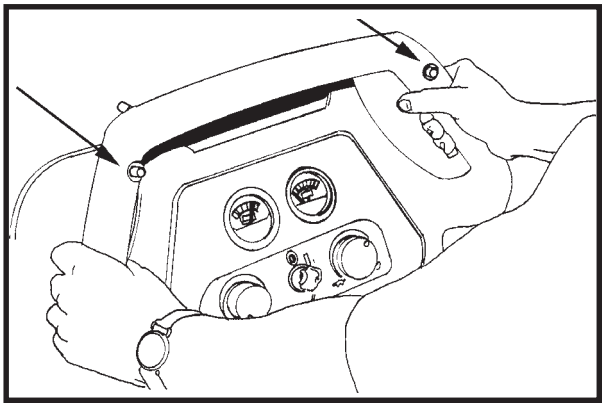


Figure #2

How to Remove the Machine From a Van or Truck

1. Make sure there are no obstructions in the area.
2. Make sure the unloading ramp is at least eight (8) feet long and a minimum of 32" wide, and strong enough to support the machine.
3. Make sure the ramp is clean and dry.
4. Put the ramp in position.
5. Unfasten the machine.

⚠ **WARNING: The machine is heavy. Make sure you use two able persons to assist in moving the machine down the ramp.**

6. On S20 model, get two people to pull machine off ramp. It is recommended that the "S" model be unloaded in the forward position.
7. Turn the key switch "ON". ("L" model only)
8. Set the traverse center knob to the slowest forward speed setting. Carefully and slowly, drive the machine to the top of the ramp and start down.
9. While pushing in the right or left forward/reverse switch the machine will go forward. See figure 2.
10. As the machine begins to travel down the ramp, push in the forward/reverse switch to maintain a slow downward speed.
11. Replace squeegee assembly, brush housing, and brush or pad driver after machine is unloaded and ready to use.

Machine Control Panel

Key Switch (See Figure 3, Item "A")
The key switch turns "ON" the power to the control panel. "O" is "OFF" and "I" is "ON".

Forward Reverse Switch (See Figure 3, Item "B")
On Traverse Model Only
The forward/reverse switch turns the traverse motor "on" forward and if the brush motor is in the down position, activates the brush motor/solution control module. There is a two second delay for the pad motor to stop after releasing the switch. Either the right or the left switch can be used. Use either switch in conjunction with the white reverse switch to reverse the traverse motor.

Reverse Switch (See Figure 3, Item "I")
On Traverse Model Only
The reverse switch, when used in conjunction with one of the forward/reverse switches, causes the machine to reverse directions. The reverse speed is 70% of the forward speed. ***NOTE: Squeegee must be raised to at least the first position.***

Battery Meter (See Figure 3, Item "C")
The battery meter indicates the relative charge on the battery pack. Do not continue to run the machine when the needle is in the "red" area. This will shorten the life of the battery pack.

Brush Pressure Meter (See Figure 3, Item "D")
The pad pressure meter indicates the relative amount of pressure the pad is putting on the floor. To maximize run time on a battery charge, keep the needle towards the center of the green area.

Hour Meter (See Figure 3, Item "E")
The hour meter indicates the number of hours the machine has operated. It runs only when the brush motor is on.

Circuit Breakers (See Figure 3, Items "F", "G" & "H")
The circuit breaker reset buttons are located on the rear cover. The breakers are located as follows:

Item F - Traverse Motor (25 amp)
Item G - Vacuum Motor (30 amp)
Item H - Brush Motor (40 amp)

If a circuit breaker trips, determine which motor is not operating and turn the key switch "OFF". Wait five minutes and push the reset button back in. Turn the key switch "ON" and try again. An authorized service person should be contacted if the breaker trips again.

Control Handles (See Figure 3, Item "I")
The control handles are located at the rear of the machine. They are used to guide the machine.

Solution Control Knob (See Figure 3, Item "J")
The solution control knob regulates the flow of chemical solution to the floor. To increase the flow, turn knob clockwise. To decrease the flow, turn counter clockwise.

Traverse Speed Knob (See Figure 3, Item "K")
To increase speed, turn knob clockwise.

Vacuum Motor Switch (See Figure 4, Item "L")
To activate vacuum motor, lower squeegee handle. Handle has two positions. Lowest position is operating position and the middle position is transport to clear vacuum hose.

Brush Motor Switch (See Figure 4, Item "M")
To activate brush motor, lower handle. Brush Motor and solution flow will activate when the traverse buttons are pushed. To shut brush motor off, raise handle to top position.

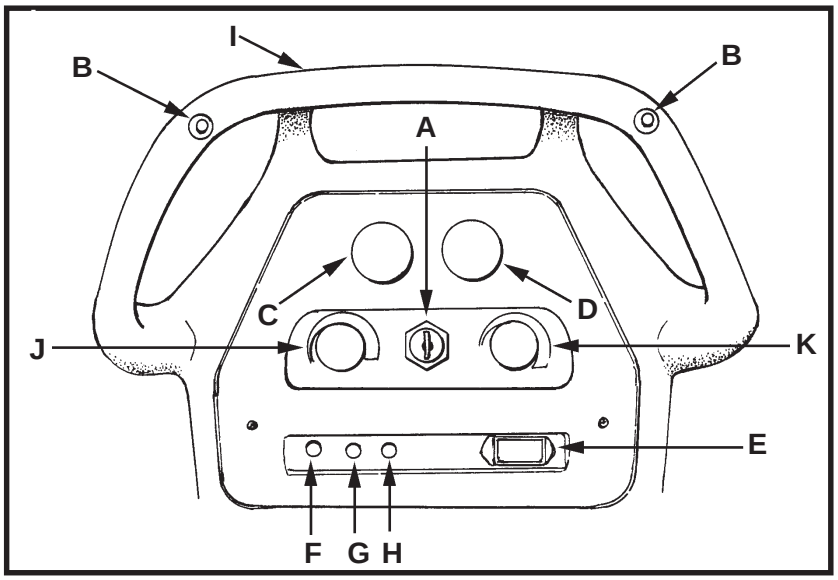


Figure 3

Squeegee Lift Handle, See Figures 5
The squeegee lift handle is located below the control handles in the center. It is used to raise or lower the squeegee. The vac motor is turned on when the handle is lowered to either the first or last position. **NOTE: Squeegee must be raised to at least the first position when the machine is backed up.**

Float Shut Off, See Figure 6
The shut-off switch for the vac motor is located in the recovery tank. It automatically turns off the vac motor when the recovery tank is full. **NOTE: If excessive foaming in recovery tank, defoamer must be added. Damage to vacuum motor could result from foam.**

Parking Brake, See Figures 7a and 7b (Optional)
The parking brake prevents movement of the machine. It is located at the rear lower left side of the machine. To engage the brake, push the pedal down (Figure 7a). To release the brake, lift pedal up (Figure 7b).

CAUTION: Do not activate the brake while the machine is moving.

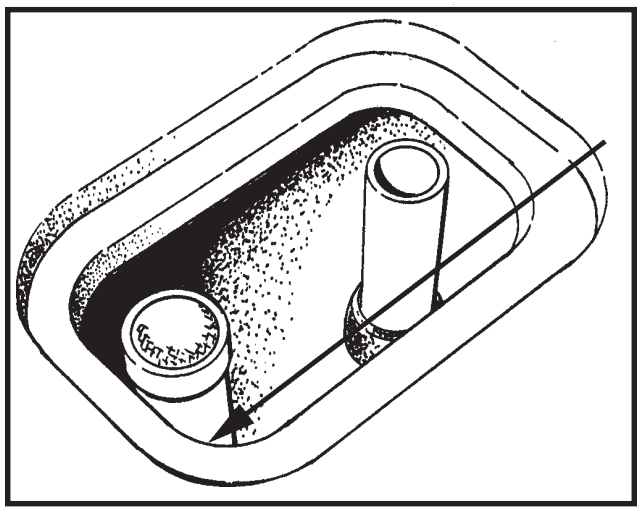


Figure 6

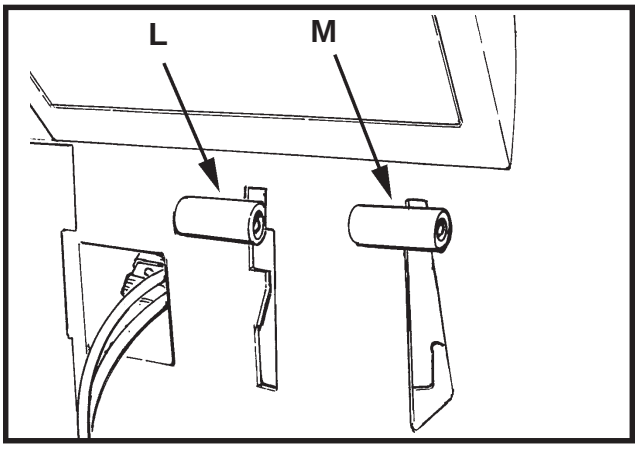


Figure 4

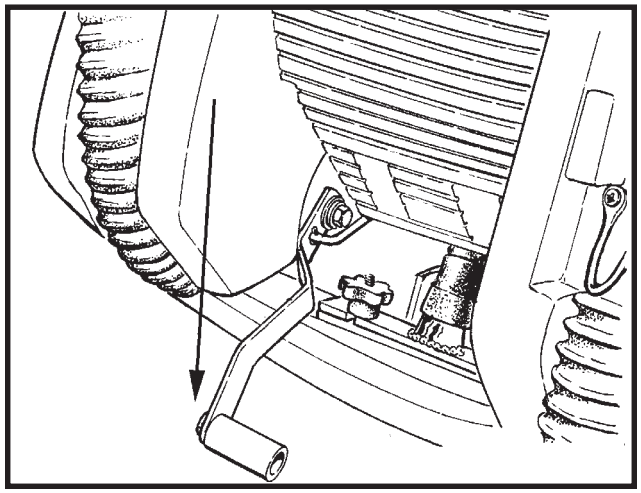


Figure 7a

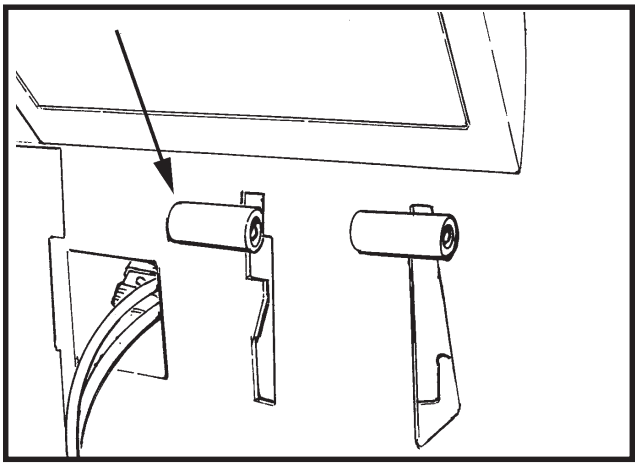


Figure 5

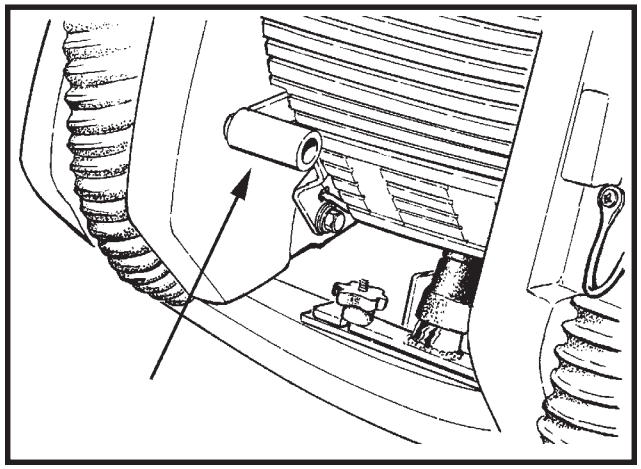


Figure 7b

How To Prepare the Machine For Operation

How To Install The Batteries

The Encore machines uses two 12-volt batteries. The batteries are located in the battery compartment under the recovery tank.

To install the batteries, follow this procedure:

1. Turn machine off. Set brake (if equipped).
2. Make sure recovery tank is empty.
3. Open recovery tank and secure with latch.
4. Place the batteries in the tray as shown in figure 8.

WARNING: Lifting batteries without help could result in an injury. Get help to lift the batteries. The batteries are heavy.

WARNING: Working with batteries can be dangerous. Always wear eye protection and protective clothing when working near batteries. NO SMOKING!

5. Connect the battery cables between batteries and install long battery cable assembly as indicated. See figure 8.
6. Join the connector from the battery pack to the connector on the control panel. See figure 9.
7. Lower recovery tank.

NOTE: Charge the batteries before using the machine.

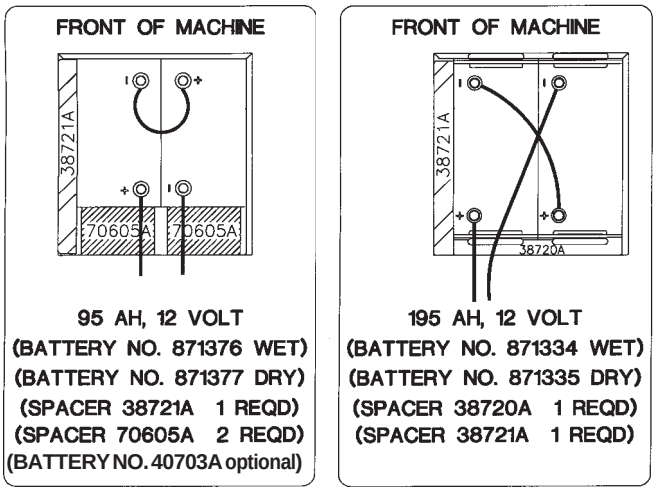


Figure 8

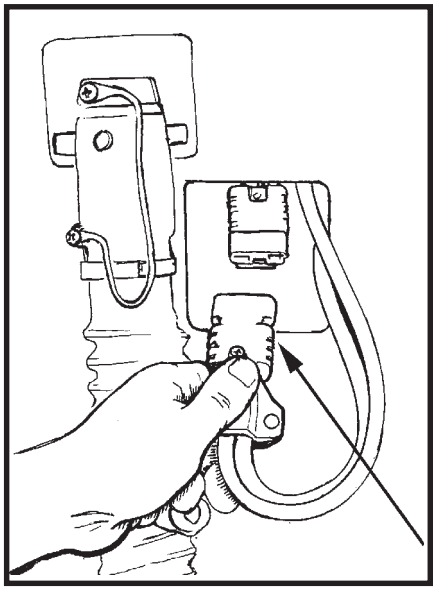


Figure 9

Battery Maintenance

The electrical power to operate the machine comes from the storage batteries. Storage batteries need preventative maintenance.

WARNING: Working with batteries can be dangerous. Always wear eye protection and protective clothing when working near batteries. NO SMOKING!

To maintain the batteries in good condition, follow these instructions:

1. Keep the electrolyte at the correct level. The correct level is between 1/4" below the bottom of the tube in each cell and above the tops of the plates. Check the level of the electrolyte each time you charge the batteries. See figure 10.

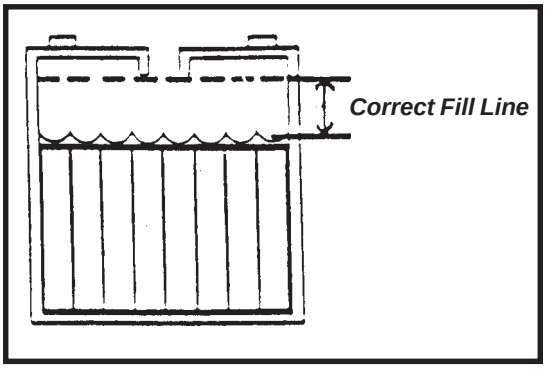


Figure 10

How To Prepare the Machine For Operation

NOTE: Check the level of electrolyte prior to charging the batteries. Be sure the plates in each cell are covered with electrolyte. Do not top off the cells prior to charging the battery. Electrolyte expands during charging. As a result, the electrolyte could overflow from the cells. Always top off the cells with distilled water after charging.

CAUTION: Irreversible damage will occur to the batteries if the electrolyte level does not cover the plates. Keep the electrolyte at the correct level.

CAUTION: Machine damage and discharge across the tops of the batteries can occur if the batteries are filled above the bottom of the tube in each cell. Do not fill the batteries up to the bottom of the tube in each cell. Wipe any acid from the machine or the tops of the batteries. Never add acid to a battery after installation.

CAUTION: Tap water may contain contaminants that will damage batteries. Batteries must be refilled with distilled water only.

2. Keep the tops of the batteries clean and dry. Keep the terminals and connectors clean. To clean the top of the batteries, use a damp cloth with a weak solution of ammonia or bicarbonate of soda solution. To clean the terminals and connectors, use a terminal and connector cleaning tool. Do not allow ammonia or bicarbonate of soda to get into batteries.

3. Keep the batteries charged.

4. To drain battery compartment: (See figure 11)
   a. Always wear protective eye protection and protective clothing.
   b. Open brush motor cover.
   c. Loosen the drain hose clip with a Phillips screw driver.
   d. Pull drain hose out to a container.
   e. Place hand behind flange and open valve.
   f. When empty, close valve.
   g. Replace hose under clip and retighten clip.
   h. Neutralize any acid spills.

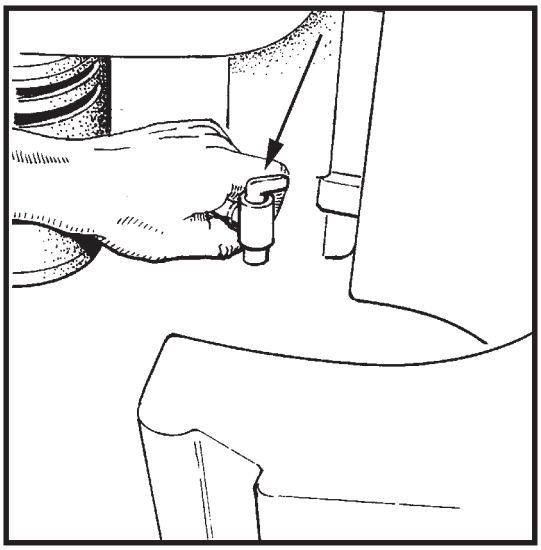


Figure 11

How To Prepare the Machine For Operation

How To Charge The Batteries

WARNING: Charging the batteries in an area without adequate ventilation could result in an explosion. To prevent an explosion, charge the batteries only in an area with good ventilation.

WARNING: Lead acid batteries generate gases which could explode. Keep sparks and flames away from batteries. NO SMOKING!

WARNING: Failure to disconnect the AC plug from the wall receptacle before connecting or disconnecting the DC connector on the charger could result in an explosion. Always disconnect the AC plug from the wall receptacle before connecting or disconnecting the DC connector on the charger.

To charge the batteries, follow this procedure:

1. Put the charger on a flat surface. Make sure the vents on the sides are at least two inches away from walls and other objects. Make sure there are no objects near the vents on the bottom of the charger.

2. Set the parking brake (if provided) by putting it into the down position. See figure 12. Make sure the key switch is in "OFF" position.

3. Disconnect the battery pack connector from the control housing connector. See figure 13.

4. Raise recovery tank and latch in place.

5. Connect the DC connector on the charger to the battery pack connector. See figure 14.

6. Connect the charger to a properly grounded single phase (3-wire) wall receptacle having the voltage, frequency, and ampere capacity specified on the nameplate of the charger.

For more information on the use of the charger, read the instruction book supplied with the charger.

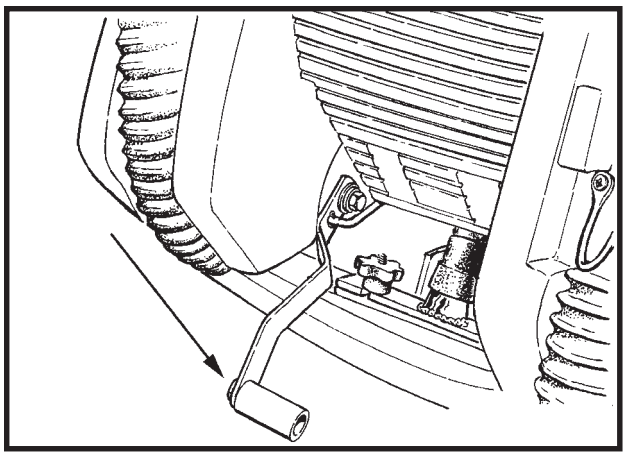


Figure 12

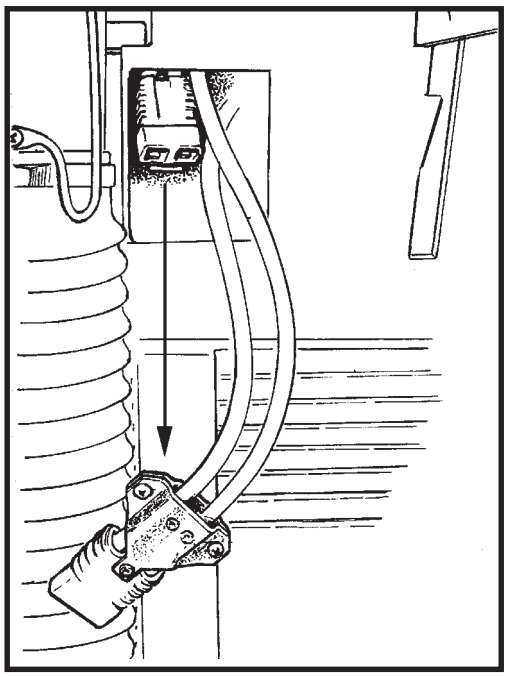


Figure 13

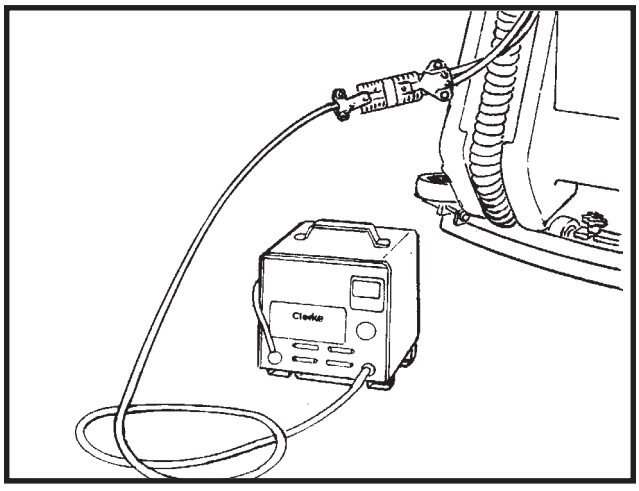


Figure 14

How To Prepare the Machine For Operation

How To Install The Brush Or Pad Driver

To install the brush or pad driver on the machine, follow this procedure:

1. Turn the key switch "OFF".
2. Put the brush switch in the "UP" position.
3. Go to the front of the machine.
4. Open the brush motor cover and remove the brush housing. See figures 15a and 15b.
5. Put a brush or pad driver under the brush housing. See figure 15c.
6. Align the lugs on the motor with the slots in the brush gimbal.
7. Pull the brush up and rotate counter clockwise until gimbal locks.
8. Replace brush housing and close brush motor cover.

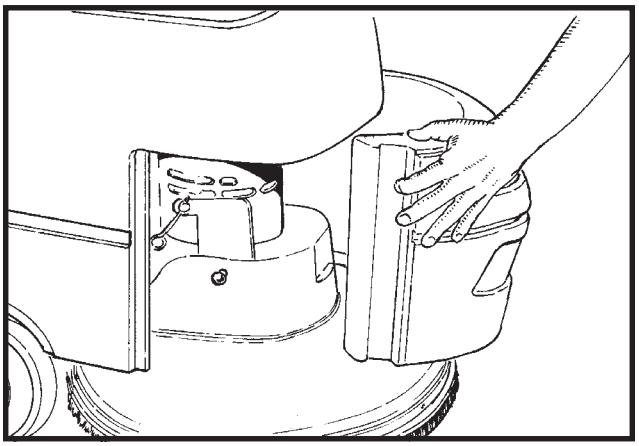


Figure 15a

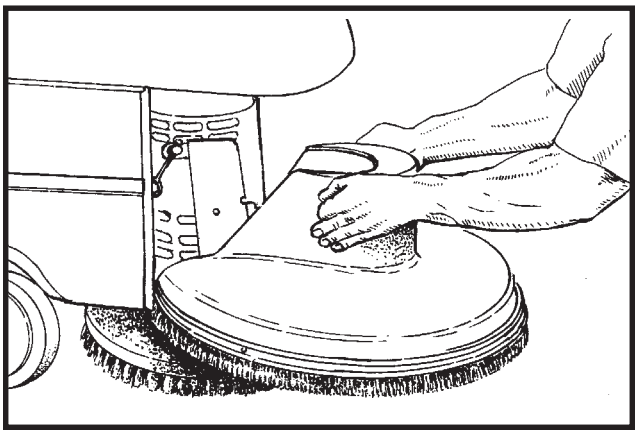


Figure 15b

How To Remove The Brush or Pad Driver

To remove the brush or pad driver from the machine, follow this procedure:

1. Put the brush switch in the "UP" position.
2. Turn the key switch "OFF".
3. Go to the front of the machine.
4. Open the brush motor cover and remove brush housing. See figures 15a-15c.
5. Rotate brush clockwise with a quick snapping action until brush releases.
6. Replace brush housing and close brush motor cover.

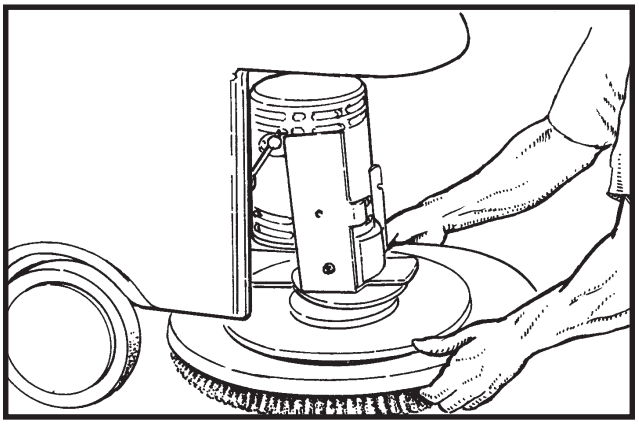


Figure 15c

How To Operate The Machine

How To Operate The Squeegee

The squeegee wipes the floor while the vacuum motor removes the dirty solution form the floor. Use your right hand to lower or raise the squeegee handle. To operate the squeegee, follow this procedure:

1. To lower the squeegee and start the vac motor, move the squeegee lever to the right and down. See figure 16.

2. To raise the squeegee, lift the squeegee lever up. See figure 17.

NOTE: The center position lets the vac motor continue to run with the squeegee off the floor to avoid drips and also allows you to back up the machine.

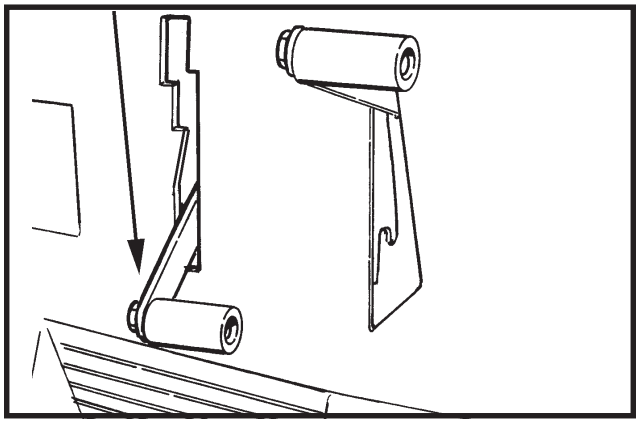


Figure 16

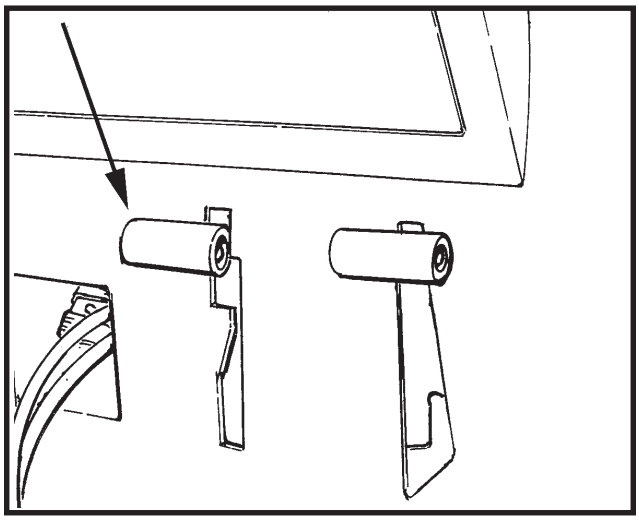


Figure 17

How To Fill The Solution Tank

The solution tank lid is at the front. To fill the solution tank follow this procedure:

1. Raise the solution tank lid.

2. Add a cleaning chemical to the solution tank. For the correct amount of chemical, follow the directions shown on the container.

3. Fill the solution tank with water.

4. Lower the solution tank lid.

WARNING: Water solutions or cleaning materials used with this type of machine can leave wet areas on the floor surface. These areas can cause a dangerous condition for the operator or other persons. Always put CAUTION signs near the area you are cleaning.

WARNING: Machines can ignite flammable materials and vapors. Do not use with or near flammables such as gasoline, grain dust, solvents and thinners. Only use a cleaning concentrate recommended by the chemical manufacturer.

How To Operate The Machine

Operating The Machine

NOTE: Put the machine in the lowest traverse speed setting. Use the machine in an area that has no furniture and objects until you can do the following:

1. Move the machine in a straight direction, forward and backward.
2. Stop the machine safely.
3. Turn the machine both left and right and return to a straight direction.

To move the machine, follow this procedure:

1. Release the parking brake (if equipped with machine).
2. Turn the key switch to the "ON" position
3. Raise the brush to the highest setting.
4. Raise the squeegee.
5. Hold the control handle as shown in figure 18.
6. When either the right or left forward/reverse switches (figure 18, item A) are pushed in, the machine will go forward.
7. Control the speed of traverse by using the speed control knob. (Figure 18, Item D)
8. To stop, release the forward/reverse switch.
9. To reverse the machine, push in the white reverse switch (figure 18 item B) and either the right or left forward/reverse switch (figure 18 item A) at the same time. **NOTE: Anytime the machine is reversed, the squeegee must be raised to either of the two up positions. This will prevent damage to the squeegee.**
10. To stop, release the forward/reverse switch.
11. To turn the machine, push the rear of the machine to the side.
12. When you stop the machine, turn the key switch "OFF" and set the parking brake (if equipped).

Adjusting The Brush Pressure

WARNING: Make sure the battery connector covers are on before making adjustments. Don't let metal parts touch the battery connections.

1. To increase or decrease the brush pressure for "Heavy Scrub", raise the recovery tank to gain access to the adjustment.
2. Turn the brush lift spring lock nut (figure 19) clockwise for more pressure and counterclockwise for less pressure. Use the brush pressure meter (figure 18, Item C) to determine the best setting. The needle should stay in the green area.

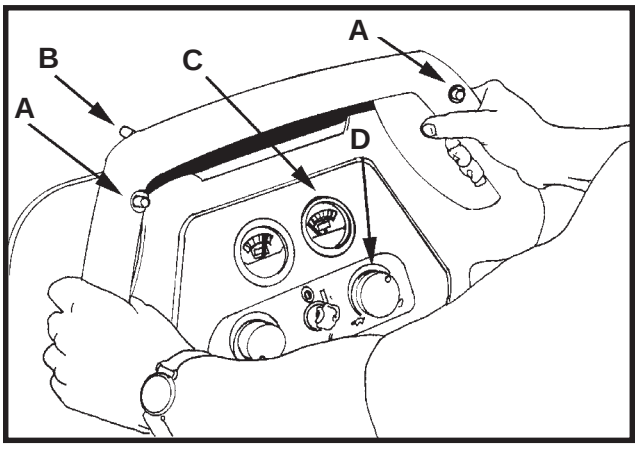


Figure 18

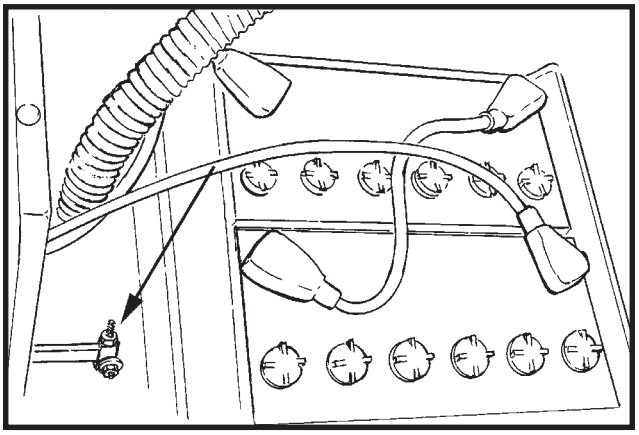


Figure 19

How To Clean A Floor

WARNING: Water solutions or cleaning materials used with this type of machine can leave wet areas on the floor surfaces. These areas can cause a dangerous condition for the operator or other persons. Always put CAUTION signs near the area you are cleaning.

To clean a floor follow this procedure:

1. Set the parking brake (if equipped with machine.)
2. Put the water and a cleaning chemical in the clean solution tank.
3. Release the parking brake (if equipped with machine.)
4. Turn the key switch "ON".
5. Lower the squeegee.
6. Put the brush lever switch in the floating position or heavy scrub position.

NOTE: Keep the machine moving when the brush is rotating on the floor. Pre-wet brush/pad or keep light pressure on brush until solution flow is adequate to keep brush/pad from scratching floor.

7. Turn the solution knob to the right to activate the flow of solution. Adjust the flow of clean solution to the flow desired.
8. Move the machine across the floor in the forward direction.
9. Make a 180° turn.

NOTE: When you make more passes across the floor, let the brush clean approximately 2 inches of the area already cleaned by the brush.

NOTE: During most cleaning procedures, apply and remove the solution in one operation.

How To Clean A Very Dirty Floor

To clean a very dirty floor, follow this procedure:

1. Apply solution to the floor.
2. Do not lower the squeegee, which will keep the vacuum motor off.
3. Lower the brush or pad and scrub the floor.
4. Scrub the floor again with additional solution and lower the squeegee.
5. Pick up all the solution with the squeegee.

ALTO®

CLARKE TECHNOLOGY

ENCORE S20/L20

Section II

Parts and Service Manual

(74836B)

U.S. Patent No. 5,383,251; No. 6,105,192; No. 6,557,207; & Patent Pending

HOW TO CORRECT PROBLEMS IN THE MACHINE

PROBLEM	CAUSE	ACTION
There is no solution flow.	The solution valve is closed.	Open the solution valve.
	There is an obstruction in the solution hose or filter.	Remove the obstruction from the hose and the filter.
	The solution valve or electric wiring is damaged.	Repair or replace the valve and the electric wiring.
	The solution tank is empty.	Fill the solution tank.
	The solution module is damaged.	Check solution module
The solution flow does not stop.	The solution valve is open or dirty.	Close or Clean the solution valve.
	The solution valve or wiring is damaged.	Repair or replace the valve and the wiring.
	The solution valve is dirty	Clean the solution valve.
	There is a damaged seat and washer in the solution valve.	Replace the seat and washer.
	The solution module is damaged.	Check solution module.
The machine does not remove all the water from the floor.	The squeegee is up	Lower the squeegee.
	The squeegee tilt is not correct.	(See Figure 11, page 23)
	The vacuum tank is full.	Drain the tank.
	The screen filter is dirty.	Clean the screen filter.
	There is an obstruction or damage in the squeegee, squeegee hose or standpipe.	Remove the obstruction or repair the damage.
	The vacuum motor is not running.	Check for tripped breaker. Have an authorized service person make repairs.
	The vacuum motor runs slow	See pg 49 for brush replacement intervals.
	The squeegee hose is disconnected, or damaged	Check and connect hose.
	The squeegee blade is damaged, worn, or incorrectly installed.	Turn or replace the squeegee blade. Correctly install the squeegee blade.
	The squeegee pressure is not correctly adjusted.	Adjust the pressure of the squeegee.
	The gaskets on the cover of the recovery tank are damaged.	Replace the gaskets.
The batteries do not give the normal running time.	The recovery tank lid is on wrong.	Rotate lid 180° and replace.
	The battery terminals are dirty or damaged.	Clean the terminals and connectors. Replace the damaged cables. Charge the batteries.
	The electrolyte level is too low.	Add distilled water to each cell and charge the batteries.
	The batteries are not fully charged.	Charge the batteries for a full 16 hour charge.
	The charger is damaged.	Have an authorized service person repair the charger.
	The battery is defective.	Check voltage of each cell while discharging.
	The batteries are disconnected.	Connect the batteries.
	Brush is in heavy scrub setting.	Run in float position.

PROBLEM	CAUSE	ACTION
The cleaning is not even.	The scrub brush or pad is worn.	Replace the scrub brush or pad.
	There is damage to the brush assembly, caster or the solution valve.	Have an authorized service person make the needed repairs.
	The brush motor is not running	Check for tripped breaker. Reset. Check for loose connections.
	The solution level is low.	Fill the solution tank.
		NOTE: If the problem continues consult an authorized service person.
The machine does not run.	The machine loses power.	Reset the circuit breaker.
	Key or switch is off.	Turn key or switch on.
	Batteries are unplugged. Battery terminals are dirty.	Check the battery connections.
	Batteries are discharged	Check battery gauge and recharge NOTE: If the problem continues consult an authorized service person.

MAINTENANCE

WARNING: Maintenance and repairs must be done by authorized personnel only.

WARNING: Always empty the solution tank and recovery tank before doing any maintenance.

WARNING: Keep all fasteners tight.

These Maintenance Procedures Must Be Done Every Day

Keep the machine clean, it will need fewer repairs and have longer life.

Do These Procedures When You Begin Your Work Period

NOTE: Always engage the parking brake (if equipped) before servicing the machine.

1. Disconnect the plug on the charger from the connector on the back of the machine. See figure 1
2. Join the connector from the batteries (1) to the control panel cable connection. See figure 1.
3. Make sure the recovery tank lid is on correctly. See figure 2.
4. Make sure the Screen filter over the vacuum motor is clean and in position. See figure 2 (a)
5. Make sure the valves on the drain hoses are clean. Tightly close the valves.
6. Make sure brush housing and skirt are in position on the brush head.
7. Make sure the brush is in position and installed correctly
8. Check the installation of the squeegee and squeegee hose.

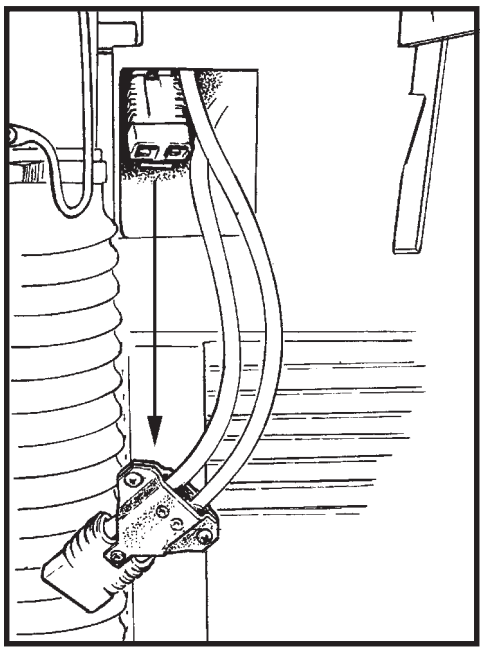


Figure 1

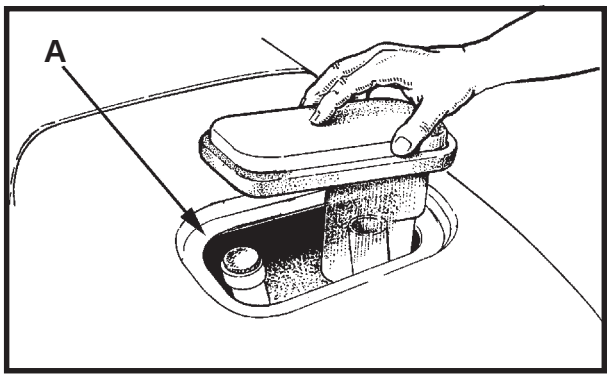


Figure 2

MAINTENANCE

Do These Procedures When You End Your Work

NOTE: Always engage the parking brake (if equipped) before servicing the machine.

1. Drain the solution tank (Figure 3) and the recovery tank (Figure 4). To drain the tanks , follow this procedure:

   a. Turn the key switch “OFF”.

   b. Remove the drain hose from the back of the machine.

   c. Put the end of the hose over a drain or bucket.

   d. Turn the valve handle to the left. Pull the handle out to open the drain. (Figure 5)

NOTE: Have the opening in the side of the valve away from you when you open the valve.

   e. To open the valve completely, turn the handle to the right. Pull the handle out of valve. (Figure 6)

2. Flush the tanks. To flush the tanks, put clean water in the tank through the opening on top of the tank.

CAUTION: Make sure water or solution does not enter the opening for the vacuum motor. See figure 2.

3. If a tank or drain hose has an obstruction, use a high pressure water hose to flush the tank or hose. Put the water hose into the drain hose.

4. Leave the tanks and the drain valves open to dry in the air.

5. Check the squeegee blade. Use a cloth to clean the squeegee blade. If the squeegee blade is damaged or worn, turn or replace the blade.

6. Check and clean the solution lid gasket. Use a mild cleaning solution and rinse the parts in clean water.

Check the batteries and add distilled water as needed. The correct level is within 1/4 inch of the bottom of the tube in each cell.

CAUTION: Tap water may contain contaminants that will damage batteries. Batteries must be refilled with distilled water only.

WARNING: Lead acid batteries generate gases which can cause an explosion. NO SMOKING. Always wear eye protection and protective clothing when working near batteries.

Use a clean cloth and wipe the surface of the machine.

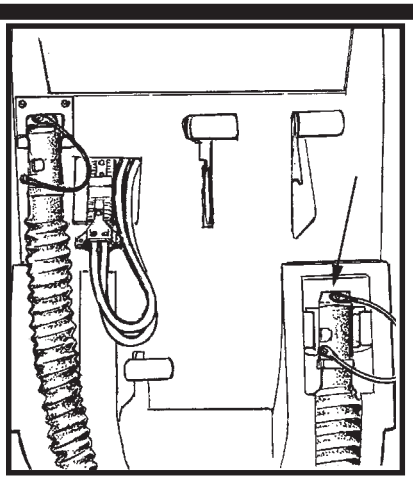


Figure 3

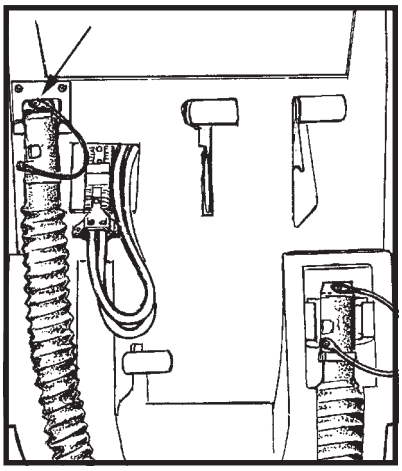


Figure 4

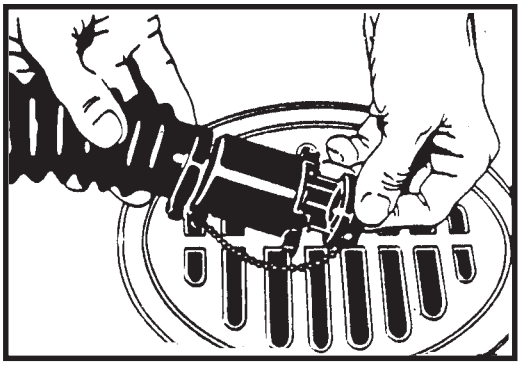


Figure 5

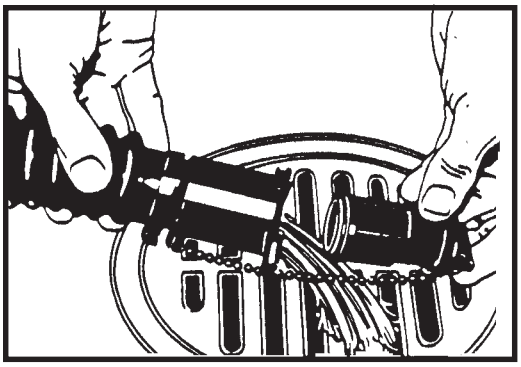


Figure 6

These Maintenance Procedures Must Be Done Every Week:

WARNING: Maintenance and repairs must be done by authorized personnel only. Always empty the solution tank and the recovery tank before doing any maintenance. Keep all fasteners tight.

WARNING: Always wear eye protection and protective clothing when working near batteries. Do not put tools or other metal objects across the battery terminals or the tops of the batteries.

CAUTION: To prevent damage to the machine, and discharge across the tops of the batteries, do not fill the batteries above the bottom of the tube in each cell. Wipe any acid from the machine or the tops of the batteries. Do not add acid to battery after installation.

WARNING: Always wear eye protection and protective clothing when working near batteries. NO SMOKING!

1. To inspect batteries, tip up recovery tank and latch the stop to hold the tank up. See Figure 7.

2. Disconnect the batteries. Use a cloth and a solution of ammonia or bicarbonate of soda to wipe the top of the batteries. Clean the battery terminals. Reconnect the batteries.

3. Check the hoses for leaks, obstructions and other damages.

4. Check and clean the filter screen in the solution hose. To clean the screen, follow this procedure: (See figures 13 and 14 page 24)

   a. Turn the connector to the left.

   b. Remove and clean the filter screen.

   c. Install the filter screen in the hose. Turn the connector to the right to connect the hose.

5. Use a grease gun to lubricate the caster. See figure 8.

6. Check the squeegee and the scrub brush or the pad driver for damage.

7. Check the squeegee and the vacuum hose for damage, leaks and obstructions.

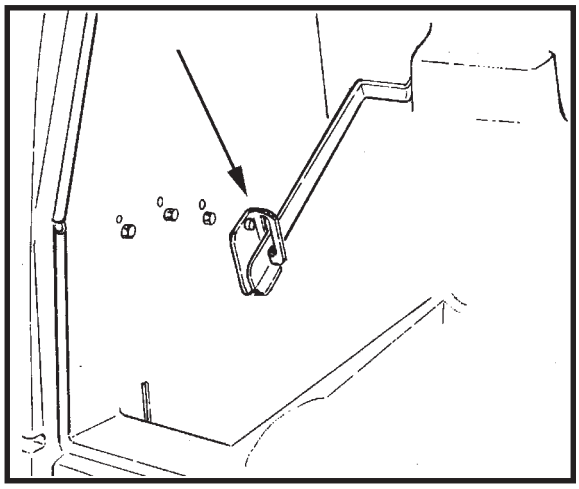


Figure 7

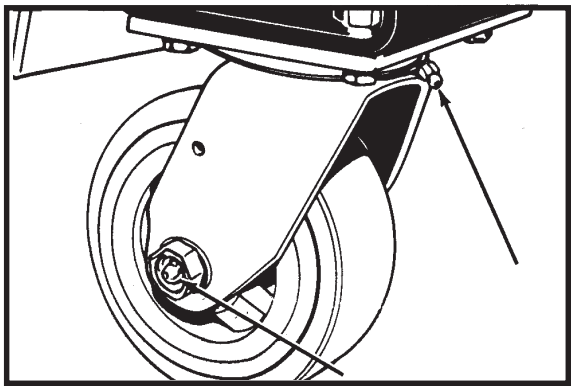


Figure 8

Maintenance For The Squeegee

To remove the squeegee, follow this procedure:

1. Remove the squeegee assembly by loosening the two knobs that attach the squeegee to the machine. Pull the squeegee assembly off. See figure 9.

2. Inspect the squeegee blade.

3. If the blade is worn, turn the blade so that a new edge is in the wiping position.

4. Reinstall squeegee assembly on the machine.

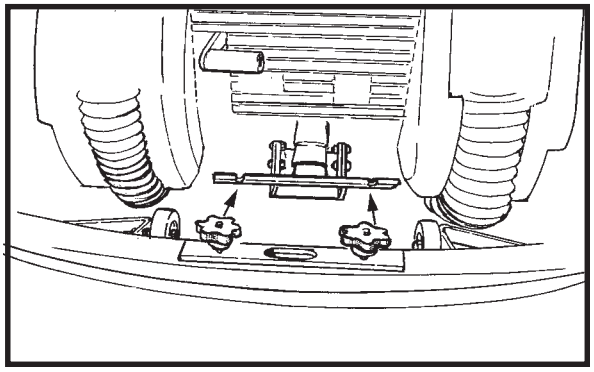


Figure 9

How To Adjust The Squeegee

The following adjustments are set at the factory, however they may require slight adjustment.

Adjusting Squeegee Pressure:
To adjust the pressure, refer to Figure 10. Proper adjustment will produce a uniform flare along the rear blade when the machine is moved forward. To increase pressure, loosen bolt and slide squeegee mount down. To decrease the pressure, loosen the bolt and slide squeegee mount up.

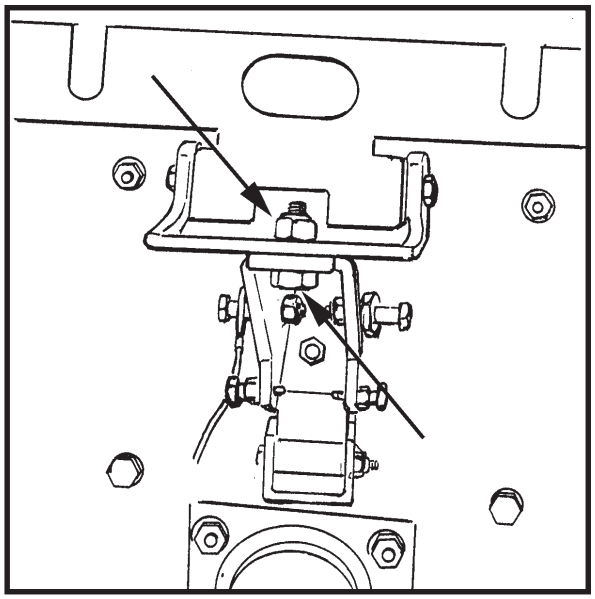


Figure 10

Adjusting Squeegee Tilt:
The tilt of the squeegee causes the rear blade to raise up in the center or on the ends, depending on which direction the tilt is changed. For tilt adjustment, refer to figure 11. Loosen left and right screw "X". In order to bring the rear blade down in the center, tip "Y" down. To bring both ends down, tip "Y" up. Make very small adjustments and try it until a uniform flare is achieved. Changing the tilt may also require readjusting the squeegee pressure.

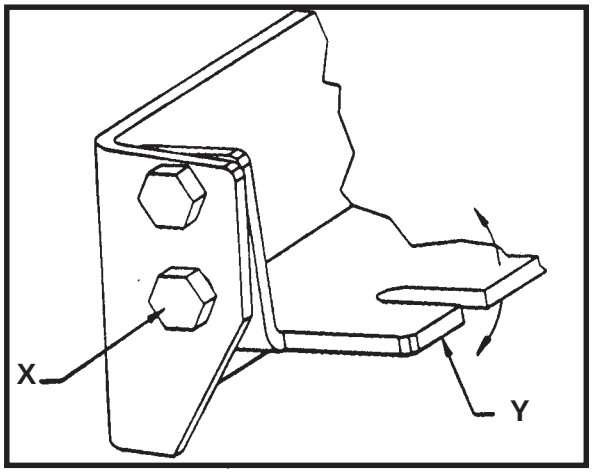


Figure 11

Adjusting Squeegee Swing:
The factory sets the squeegee swing for using the 33" squeegee. If you are using the optional 29" squeegee, the stop screws (page 35, ref. # 20) must be adjusted in. This is done by loosening the jam nut (page 35, ref. #10); turning the screw in; and then retightening the nut. The squeegee (29" or 33") is properly adjusted when it will swing all the way left or right to within 3/4" of the drive wheels without hitting them.

MAINTENANCE

Adjusting Squeegee Blades:

When properly installed the front blade should be approximately .06 above the rear blade. See figure 12.

Adjusting Squeegee Support Wheels:

The support wheels should be set at .12 above the floor with the rear blade touching the floor. See figure 12.

WARNING: Maintenance and repairs must be done by authorized personnel only .

WARNING: Electrical repairs must be done by authorized personnel only.

Consult your Clarke Technology Authorized Service Person to do the service procedures.

Use only genuine Clarke Technology parts.

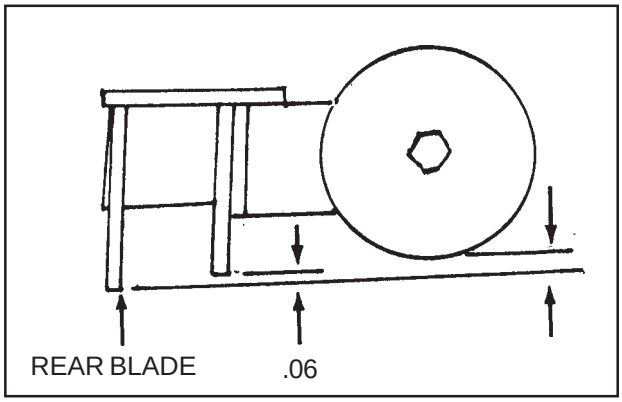


Figure 12

Battery Traverse - 115V

00881A

Breakdown:	00880A	Encore L20 Base Machine
	871334	Battery, 195 AH, Wet, 12 Volt (2)
	51447D	20" Polypropylene Brush
	40512A	24 VDC, 25 Amp, 115V/60 Hz Battery Charger

00882A

Breakdown:	00880A	Encore L20 Base Machine
	871334	Battery, 195 AH, Wet, 12 Volt (2)
	51453D	Pad Driver
	40512A	24 VDC, 24 Amp, 115V/60 Hz Battery Charger

Battery Traverse - 230V

00883A

Breakdown:	00880A	Encore L20 Base Machine
	871335	Battery, 195 AH, Dry, 12 Volt (2)
	51447D	20" Polypropylene Brush
	40513A	24 VDC, 25 Amp, 230V/50 Hz Battery Charger

00884A

Breakdown:	00880A	Encore L20 Base Machine
	871335	Battery, 195 AH, Dry, 12 Volt (2)
	51453D	Pad Driver
	40513A	24 VDC, 25 Amp, 230V/50 Hz, Battery Charger

Battery Traverse 115V

00885A

Breakdown:	00880A	Encore L20 Base Machine
	871376	Battery, 95 AH, Wet, 12 Volt (2)
	51447D	20" Polypropylene Brush
	40520A	24 VDC, 8 Amp, 115/60 Hz Battery Charger

00886A

Breakdown:	00880A	Encore L20 Base Machine
	871376	Battery, 95 AH, Wet, 12 Volt (2)
	51453D	Pad Driver
	40520A	24 VDC, 8 Amp, 115/60 Hz Battery Charger

Battery 230

00887A

Breakdown:	00880A	Encore L20 Base Machine
	871377	Battery, 95 AH, Dry, 12 Volt (2)
	51447D	20" Polypropylene Brush
	40521A	24 VDC, 8 Amp, 230V/50 Hz Battery Charger

00888A

Breakdown:	00880A	Encore L20 Base Machine
	871377	Battery, 95 AH, Dry, 12 Volt (2)
	51453D	Pad Driver
	40521A	24 VDC, 8 Amp, 230V/50 Hz Battery Charger

Battery 115V

00891A

Breakdown:	00890A	Encore S20 Base Machine
	871334	Battery, 195 AH, Wet, 12 Volt (2)
	51447D	20" Polypropylene Brush
	40512A	24 VDC, 25 Amp, 115/60 Hz Battery Charger

00892A

Breakdown:	00890A	Encore S20 Base Machine
	871334	Battery, 195 AH, Wet, 12 Volt (2)
	51453D	Pad Driver
	40512A	24 VDC, 25 Amp, 115/60 Hz Battery Charger

Battery 230V

00893A

Breakdown:	00890A	Encore S20 Base Machine
	871335	Battery, 195 AH, Dry, 12 Volt (2)
	51447D	20" Polypropylene Brush
	40513A	24 VDC, 25 Amp, 230V/50 Hz Battery Charger

00894A

Breakdown:	00890A	Encore S20 Base Machine
	871335	Battery, 195 AH, Dry, 12 Volt (2)
	51453D	Pad Driver
	40513A	24 VDC, 25 Amp, 230V/50 Hz Battery Charger

Battery 115V

00895A

Breakdown:	00890A	Encore S20 Base Machine
	871376	Battery, 95 AH, Wet, 12 Volt (2)
	51447D	20" Polypropylene Brush
	40520A	24 VDC, 8 Amp, 115V/60 Hz Battery Charger

00896A

Breakdown:	00890A	Encore S20 Base Machine
	871376	Battery, 95 AH, Wet, 12 Volt (2)
	51453D	Pad Driver
	40520A	24 VDC, 8 Amp, 115V/60 Hz Battery Charger

Battery 230V

00897A

Breakdown:	00890A	Encore S20 Base Machine
	871377	Battery, 95 AH, Dry, 12 Volt (2)
	51447D	20" Polypropylene Brush
	40521A	24 VDC, 8 Amp, 230V/50 Hz Battery Charger

00898A

Breakdown:	00890A	Encore S20 Base Machine
	871377	Battery, 95 AH, Dry, 12 Volt (2)
	51453D	Pad Driver
	40521A	24 VDC, 8 Amp, 230V/50 Hz, Battery Charger

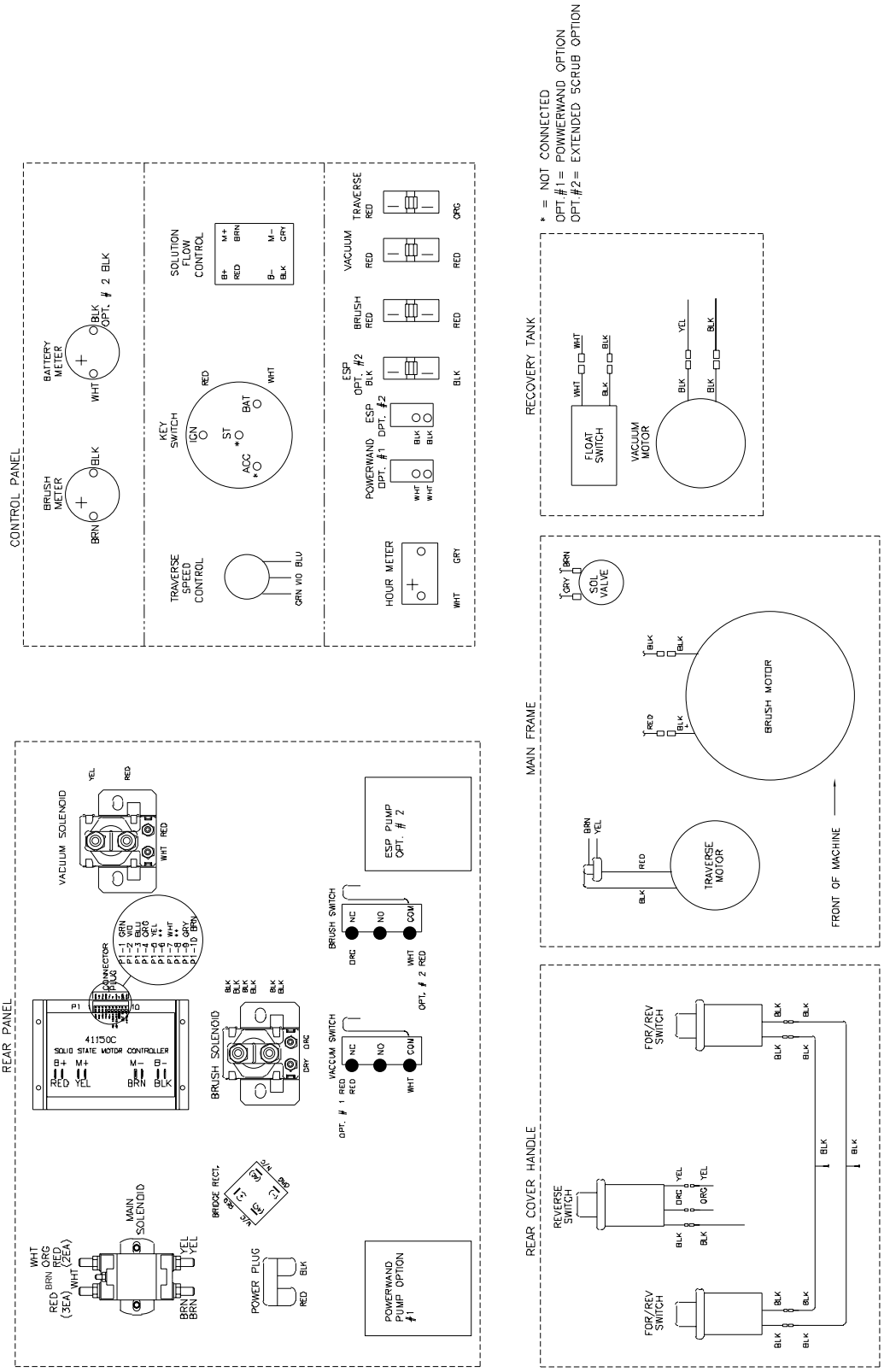
ACCESSORIES

Description	Part No.
Pad Driver, Dual Direction	51453D
Base	57370A
Retainer	57369A
Pad/Brush Clutch Plate Metal	66649A
Spacer (for Clutch Plate 66649A)	58531A
Dual Direction Clutch Plate	30034A
Spacer (for Clutch Plate 30034A)	58530A
Clutch Plate Screws	962819
Clutch Plate Nuts	80084A
Grit Brush Dual Direction	51450D
Poly Brush Dual Direction	51447D
Clean Grit Dual Direction	51474D
Nylon Brush .016 Dual Direction	51482D
Grit-Lite Dual Direction	51484B
Kit, Conversion from metal to Dual Direction Clutch Plate	10055A
Power Wand Kit	10662A
ESP Recycle System Kit	10663A
Clarke Care Kit	14607A
Hour Meter Kit	10656A
29" Squeegee Kit	18820A
32" Squeegee Kit	10129A
Polydur, Protectant	50478A
Kit, Grease Gun	55420A
Kit, Low Voltage Cut-off 24 Volt	14097A
Brush Meter Option	10667A
Electronic Solution Module	10669A
Brake Option	10635A

Pads by Case

Color	2000
Yellow	979199
White	976067
Red	976068
Green	976169
Blue	976069
Brown	976070
Black	976170
Ultra H.S.	979206

CLARKE TECHNOLOGY
Encore L20
Connection Diagram (00880A-W) 2/04
(for machines with a 41150C traverse controller)



ALTO PRODUCT SUPPORT BRANCHES

U. S. A. Locations

PRODUCTION FACILITIES

Clarke® , Springdale, Arkansas
2100 Highway 265
Springdale, Arkansas 72764
(479) 750-1000
Customer Service - 1-800-253-0367
Technical Service - 1-800-356-7274

American Lincoln®, Bowling Green, Ohio 43402
1100 Haskins Road

SERVICE FACILITIES

Clarke®, Elk Grove, Illinois 60007
2280 Elmhurst Road
(847) 956-7900

Clarke®, Denver, Colorado 80204
1955 West 13th Ave.
(303) 623-4367

Clarke®, Houston, Texas 77040
7215 North Gessner Road
713-937-7717

SERVICE AND SALES FACILITY

American Lincoln® / Clarke, Madison Heights,
Michigan 48071-0158
29815 John R.
(810) 544-6300

American Lincoln® / Clarke, Marietta, Georgia 30066
1455 Canton Road
(770) 973-5225

SALES AND DISTRIBUTION CENTER

Clarke®, Secaucus, NJ 07094
74 Henry Street
(201) 864-5503

Clarke®
Clarke American Sanders
A.L. Cook
Customer Service Headquarters and Factory
2100 Highway 265
Springdale, Arkansas 72764
(479) 750-1000

Technical Service
1-800-356-7274

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